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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,853	01/07/2002	David G. Way	064731.0257	5513

5073   7590   01/26/2009
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EXAMINER
CURS, NATHAN M

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
01/26/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/041,853	WAY, DAVID G.
	Examiner	Art Unit	
	NATHAN M. CURS	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>21 October 2008</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-7,9,11 and 13-20</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-7,9,11 and 13-20</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>07 January 2002</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some *   c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-7, 9, 11, and 13-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Colbourne et al. ("Colbourne") (US Patent No. 6654564) in view of

Delavaux et al. ("Delavaux") (US Patent No. 5608562), and further in view of Keys (US

Patent No. 6456773), and further in view of Feinberg (US Patent Application Publication

No. 2003/0031433).

        Regarding claim 1, Colbourne discloses a dispersion compensation system

comprising: a dispersion compensation module (DCM) operable to receive optical input

and provide optical output having a negative dispersion relative to the optical input (fig.

13b, element R3 and fig. 19, element 192) and a dispersion enhancement module

(DEM) adapted to be optically coupled between the DCM and an optical fiber having a

positive dispersion (fig. 13b, element R1 and fig. 19, element 191), the DEM operable to

selectively increase the positive dispersion provided by the optical fiber by a selected

one of a plurality of amounts and to provide the optical input to the DCM, the optical

input having a positive dispersion substantially equal to the positive dispersion of the

optical fiber plus the selected one of the amounts of dispersion in the DEM (col. 1, lines

7-9 and lines 18-27, and col. 4, lines 31-61 and col. 9, line 64 to col. 10, line 61).

Colbourne discloses controlling the tunable dispersion compensation amount

(Colbourne: col. 9, line 64 to col. 10, line 61 and col. 11, lines 3-22) but does not

disclose the dispersion enhancement module comprising a plurality of dispersion

enhancement fibers. Delavaux discloses a variable dispersion compensation device

using switched DCFs and fixed DCFs over various compensation values, the switched

DCFs controlled by a controller that is operable to determine the dispersion of the

variable compensator, the dispersion parameter of the fiber, and the selected amount of

dispersion to provide (figs. 5 and 9 and col. 3, line 43 to col. 4, line 10 and col. 4, lines

32-63). It would have been obvious to one of ordinary skill in the art at the time of the

invention to use the variable dispersion compensation devices and controllers of

Delavaux for the variable compensators of Colbourne since dispersion compensation

fiber is conventional and since the etalons of Colbourne require dimensions and free

spectral range that are dependent on channel spacing of a multi-wavelength signal.

Keys discloses tailoring dispersion compensating modules for specific compensation

values by using various segments of DCF, including positive and negative dispersion

segments (col. 1, line 57 to col. 2, line 11). It would have been obvious to one of

ordinary skill in the art at the time of the invention to use a set of positive dispersion

segments and a set of negative dispersion segments in each of the DCF-based

dispersion compensation devices of the combination of Colbourne and Delavaux, in

order to be able to use the same dispersion compensation device for spans of varying

length and fiber types, by connecting the appropriate segments of DCF within the device (negative, positive, or both), as taught by Keys. The combination of Colbourne, Delavaux and Keys discloses the controller determining the dispersion of the compensator and the fiber, and determining the dispersion compensation adjustment amount, but does not disclose the controller detecting a switch from the transport fiber to a backup optical transport fiber, the backup transport fiber having a third positive dispersion to reconfigure the dispersion enhancement module to provide a fourth positive dispersion, the sum of the third positive dispersion and the fourth positive dispersion substantially equal to the magnitude of the negative dispersion. Feinberg disclose a protected optical transmission system where different dispersion compensation values are used for each of the received working and protection signals (fig. 4, elements 420, 425 and 322 and paragraphs 0037 and 0041). It would have been obvious to one of ordinary skill in the art at the time of the invention to supply a protection switched optical input to the dispersion compensation system of the combination of Colbourne, Delavaux and Keys, with the controller of the combination of Colbourne, Delavaux and Keys detecting a fiber switch by way of detecting a change in the needed amount of dispersion compensation when the incoming fiber signal is switched due to a protection switch, in order to provided the advantage of adding a protected input to the combination of Colbourne, Delavaux and Keys without having to duplicate the dispersion compensation system since it would automatically adjust the dispersion compensation for either of the working or protect input signal.

Regarding claim 2, the combination of Colbourne, Delavaux, Keys and Feinberg discloses the dispersion compensation system of claim 1, wherein a magnitude of the positive dispersion of the optical input is substantially equal to a magnitude of the negative dispersion of the DCM, such that the optical output has a dispersion near to zero (Colbourne: col. 4, lines 31-61 and Keys: col. 1, line 57 to col. 2, line 11, as applicable in the combination).

Regarding claim 3, the combination of Colbourne, Delavaux, Keys and Feinberg discloses the dispersion compensation system of claim 1, wherein the DCM is designed to compensate for dispersion along a fixed length of an optical fiber type, the optical fiber type having a positive dispersion per unit length and wherein, if the optical fiber coupled to the DEM has an actual length less than the fixed length, the selected amount of dispersion in the DEM increases dispersion by an amount substantially equal to dispersion resulting from a length of the optical fiber type equal to the difference of the fixed length and the actual length (Colbourne: col. 1, lines 7-9 and lines 18-27 and col. 4, lines 31-61 and Keys: col. 1, line 57 to col. 2, line 11, as applicable in the combination).

Regarding claim 4, the combination of Colbourne, Delavaux, Keys and Feinberg discloses the dispersion compensation system of claim 1, and discloses two amplifiers, where the DCM is between the two amplifiers (Delavaux: fig. 1 and col. 2, lines 53-64, as applicable in the combination), but does not disclose the set of positive DCFs before the amplifier in front of the DCM. However, based on the pre-amp teaching of Delavaux, it would have been obvious to one of ordinary skill in the art at the time of the

invention to use a pre-amplifier before both a set of positive DCFs and a set of negative

DCFs for the combination since each DCF fiber set has a length of fiber that contributes

loss to the signal. Further, it would have been obvious to one of ordinary skill in the art

at the time of the invention that the serial order of devices within the dispersion

compensation device would be DEM then DCM as suggested by Colbourne.

Regarding claim 5, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the dispersion compensation system of claim 1, and disclose that the DCM

comprises dispersion compensation fiber having a defined negative dispersion per unit

length (Colbourne: col. 9, lines 12-14 and Keys: col. 1, lines 32-67, where a DCF fiber

segment with negative dispersion inherently has a definite negative dispersion per unit

length, as applicable in the combination).

Regarding claim 6, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the dispersion compensation system of claim 1, and discloses that the DEM

comprises a plurality of dispersion enhancement fibers each having a defined positive

dispersion per unit length, each of the dispersion enhancement fibers having a different

length (Delavaux.: col. 3, lines 43-56 and Keys: col. 1, lines 57-67, where a DCF fiber

segment with positive dispersion inherently has a definite positive dispersion per unit

length, as applicable in the combination).

Regarding claim 7, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the dispersion compensation system of claim 1, wherein the DEM is operable

to selectively couple one or more of the dispersion enhancement fibers together to form

an optical path coupling the optical fiber to the DCM through the selected one or more

of the dispersion enhancement fibers (Delavaux: col. 3, lines 43-56 and Keys: col. 1,

lines 57-67, as applicable in the combination).

Regarding claim 9, Colbourne discloses a method for dispersion compensation

comprising: providing an optical transport fiber coupling a first network element and a

second network element, the transport fiber having a first positive dispersion (col. 1,

lines 7-9 and lines 18-27); providing a dispersion enhancement module disposed

between the transport fiber and the second network element (fig. 13b, element R1 and

fig. 19, element 191); determining a negative dispersion of the second network element

(col. 11, lines 3-22); and configuring the dispersion enhancement module to provide

second positive dispersion, the sum of the first positive dispersion and the second

positive dispersion substantially equal to the magnitude of the negative dispersion (col.

4, lines 31-61 and col. 9, line 64 to col. 10, line 61). Colbourne does not disclose that

routing signals from the transport fiber through the dispersion enhancement module

comprises routing signals through one or more dispersion enhancement fibers.

Delavaux discloses a variable dispersion compensation device using switched DCFs

and fixed DCFs over various compensation values, the switched DCFs controlled by a

controller (figs. 5 and 9 and col. 3, line 43 to col. 4, line 10 and col. 4, lines 32-63).

Keys discloses tailoring dispersion compensating modules for specific compensation

values by using various segments of DCF, including positive and negative dispersion

segments (col. 1, line 57 to col. 2, line 11). It would have been obvious to one of

ordinary skill in the art at the time of the invention to combine Delavaux and Keys with

Colbourne as described above for claim 1. The combination of Colbourne, Delavaux

and Keys discloses the controller determining the correct dispersion compensation

adjustment (Colbourne: col. 11, lines 3-22 and Delavaux: col. 3, lines 10-42, as

applicable in the combination), but do not disclose detecting a switch from the transport

fiber to a backup optical transport fiber, the backup transport fiber having a third positive

dispersion; and reconfiguring the dispersion enhancement module to provide a fourth

positive dispersion, the sum of the third positive dispersion and the fourth positive

dispersion substantially equal to the magnitude of the negative dispersion. Feinberg

disclose a protected optical transmission system where different dispersion

compensation values are used for each of the received working and protection signals

(fig. 4, elements 420, 425 and 322 and paragraphs 0037 and 0041). It would have been

obvious to one of ordinary skill in the art at the time of the invention to supply a

protection switched optical input to the dispersion compensation system of the

combination of Colbourne, Delavaux and Keys, with the controller of the combination

detecting a fiber switch by way of detecting a change in the needed amount of

dispersion compensation when the incoming fiber signal is switched due to a protection

switch, in order to provided the advantage of adding a protected input to the

combination without having to duplicate the dispersion compensation system since it

would automatically adjust the dispersion compensation for either of the working or

protect input signal.

Regarding claim 11, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the method claim 9, and that the negative dispersion in the second network

element results from dispersion compensation fiber having a defined negative

dispersion per unit length (Colbourne: col. 9, lines 12-14 and Keys: col. 1, lines 32-67,

where a DCF fiber segment with negative dispersion inherently has a definite negative

dispersion per unit length, as applicable in the combination).

Regarding claim 13, Colbourne discloses a dispersion compensation system

comprising: a dispersion compensation device operable to provide optical output having

a negative dispersion (fig. 13b, element R3 and fig. 19, element 192) and a dispersion

enhancement module (DEM) (fig. 13b, element R1 and fig. 19, element 191) adapted to

be optically coupled to an optical fiber having a positive dispersion and to receive an

optical input from the optical fiber, the DEM operable to selectively increase the positive

dispersion provided by the optical fiber by a selected one of a plurality of amounts, the

optical input having a positive dispersion substantially equal to the positive dispersion of

the optical fiber plus the selected one of the amounts of dispersion in the DEM (col. 1,

lines 7-9 and lines 18-27, and col. 4, lines 31-61 and col. 9, line 64 to col. 10, line 61).

Colbourne discloses controlling the tunable dispersion compensation amount

(Colbourne: col. 9, line 64 to col. 10, line 61 and col. 11, lines 3-22) but does not

disclose a first optical amplifier and a second optical amplifier and negative dispersion

compensation fiber optically coupled between the first optical amplifier and the second

optical amplifier, and do not disclose the dispersion enhancement module comprising a

plurality of dispersion enhancement fibers. Delavaux disclosed using pre and post

amplifiers with a DCF-based variable dispersion compensation device controlled by a

controller that is operable to determine the dispersion of the DCFs of the variable

compensator, the dispersion parameter of the optical fiber, and the selected amount of

dispersion to provide (fig. 1 and col. 2, lines 53-64 and figs. 5 and 9 and col. 3, line 43 to

col. 4, line 10 and col. 4, lines 32-63). It would have been obvious to one of ordinary

skill in the art at the time of the invention to use the variable dispersion compensation

devices and controllers of Delavaux for the variable compensators of Colbourne since

dispersion compensation fiber is conventional and since the etalons of Colbourne

require dimensions and free spectral range that are dependent on channel spacing of a

multi-wavelength signal, and it would have been obvious to one of ordinary skill in the

art at the time of the invention to use a pre-amplifier and post-amplifier when using DCF

since each DCF fiber set has a length of fiber that contributes loss to the signal. Keys

discloses tailoring dispersion compensating modules for specific compensation values

by using various segments of DCF, including positive and negative dispersion segments

(col. 1, line 57 to col. 2, line 11). It would have been obvious to one of ordinary skill in

the art at the time of the invention to use a set of positive dispersion segments and a set

of negative dispersion segments in each of the DCF-based dispersion compensation

devices of the combination of Colbourne and Delavaux in order to be able to use the

same dispersion compensation device for spans of varying length and fiber types, by

connecting the appropriate segments of DCF within the device (negative, positive, or

both), as taught by Keys. Further, based on the pre-amp teaching of Delavaux, it would

have been obvious to one of ordinary skill in the art at the time of the invention to use a

pre-amplifier before each set of DCFs for the combination of Colbourne, Delavaux and

Keys since each DCF fiber set has a length of fiber that contributes loss to the signal.

Further, it would have been obvious to one of ordinary skill in the art at the time of the

invention that the serial order of devices within the dispersion compensation device

would be DEM then DCM, since this is suggested by Colbourne. The combination of

Colbourne, Delavaux and Keys discloses the controller determining the dispersion of

the compensator, the fiber and the dispersion compensation adjustment amount, but

does not disclose the controller detecting a switch from the transport fiber to a backup

optical transport fiber, the backup transport fiber having a third positive dispersion to

reconfigure the dispersion enhancement module to provide a fourth positive dispersion,

the sum of the third positive dispersion and the fourth positive dispersion substantially

equal to the magnitude of the negative dispersion. Feinberg disclose a protected optical

transmission system where different dispersion compensation values are used for each

of the received working and protection signals (fig. 4, elements 420, 425 and 322 and

paragraphs 0037 and 0041). It would have been obvious to one of ordinary skill in the

art at the time of the invention to supply a protection switched optical input to the

dispersion compensation system of the combination of Colbourne, Delavaux and Keys,

with the controller of the combination detecting a fiber switch by way of detecting a

change in the needed amount of dispersion compensation when the incoming fiber

signal is switched due to a protection switch, in order to provided the advantage of

adding a protected input to the combination without having to duplicate the dispersion

compensation system since it would automatically adjust the dispersion compensation

for either of the working or protect input signal.

Regarding claim 14, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the dispersion compensation system of claim 13, wherein the DEM comprises

a plurality of dispersion enhancement fibers each having a defined positive dispersion

per unit length, each of the dispersion enhancement fibers having a different length

(Delavaux: col. 3, lines 43-56 and Keys: col. 1, lines 57-67, where a DCF fiber segment

with positive dispersion inherently has a definite positive dispersion per unit length, as

applicable in the combination).

    Regarding claim 15, the combination of Colbourne, Delavaux, Keys and Feinberg

discloses the dispersion compensation system of claim 14, wherein the DEM is

operable to selectively couple one or more of the dispersion enhancement fibers

together to form an optical path coupling the optical fiber to the DCM through the

selected one or more of the dispersion enhancement fibers (Delavaux: col. 3, lines 43-

56 and Keys: col. 1, lines 57-67, as applicable in the combination).

    Regarding claim 16, Colbourne discloses a dispersion enhancement module (fig.

13b, element R1 and fig. 19, element 191) adapted to be optically coupled to a

dispersion compensation module having a fixed negative dispersion (fig. 13b, element

R3 and fig. 19, element 192 and col. 4, lines 53-61), the dispersion enhancement

module comprising: an optical input adapted to couple to an optical transport fiber and

an optical output adapted to couple to the dispersion compensation module, wherein

optical signals from the optical output have a positive dispersion substantially equal to a

sum of positive dispersion of the transport fiber and positive dispersion of the optical

path (col. 1, lines 7-9 and lines 18-27, and col. 4, lines 31-61 and col. 9, line 64 to col.

10, line 61). Colbourne discloses controlling the tunable dispersion compensation

amount (Colbourne: col. 9, line 64 to col. 10, line 61 and col. 11, lines 3-22) but does

not disclose the dispersion enhancement module comprising a plurality of switched

dispersion enhancement fibers forming a path. Delavaux discloses a variable

dispersion compensation device using switched DCFs and fixed DCFs over various

compensation values, forming a path, the switched DCFs controlled by a controller that

is operable to determine the dispersion of the variable compensation device and the

path through the switches of DCFs selected for the compensation, the dispersion

parameter of the fiber, and the selected amount of dispersion to provide (figs. 5 and 9

and col. 3, line 43 to col. 4, line 10 and col. 4, lines 32-63). Keys discloses tailoring

dispersion compensating modules for specific compensation values by using various

segments of DCF, including positive and negative dispersion segments (col. 1, line 57

to col. 2, line 11). It would have been obvious to one of ordinary skill in the art at the

time of the invention to combine Delavaux and Keys with Colbourne as described above

for claim 1. The combination of Colbourne, Delavaux and Keys discloses the controller

determining the dispersion of the compensation device and the fiber, and determining

the dispersion compensation adjustment amount, but does not disclose the controller

detecting a switch from the transport fiber to a backup optical transport fiber, the backup

transport fiber having a third positive dispersion to reconfigure the dispersion

enhancement module to provide fourth positive dispersion, the sum of the third positive

dispersion and the fourth positive dispersion substantially equal to the magnitude of the

negative dispersion. Feinberg disclose a protected optical transmission system where

different dispersion compensation values are used for each of the received working and

protection signals (fig. 4, elements 420, 425 and 322 and paragraphs 0037 and 0041).

It would have been obvious to one of ordinary skill in the art at the time of the invention to supply a protection switched optical input to the dispersion compensation system of the combination of Colbourne, Delavaux and Keys, with the controller of the combination detecting a fiber switch by way of detecting a change in the needed amount of dispersion compensation when the incoming fiber signal is switched due to a protection switch, in order to provided the advantage of adding a protected input to the combination without having to duplicate the dispersion compensation system since it would automatically adjust the dispersion compensation for either of the working or protect input signal.

Regarding claim 17, the combination of Colbourne, Delavaux, Keys and Feinberg discloses the dispersion enhancement module of claim 16, wherein a magnitude of the positive dispersion of the optical signals is substantially equal to a magnitude of the negative dispersion of the dispersion compensation module (Colbourne: col. 4, lines 31-61 and Keys: col. 1, line 57 to col. 2, line 11, as applicable in the combination).

Regarding claim 18, the combination of Colbourne, Delavaux, Keys and Feinberg discloses the dispersion enhancement module of claim 16, and discloses a controller operable to: detect a switch from the optical transport fiber to a backup optical transport fiber; determine a difference in magnitudes of the negative dispersion of the dispersion compensation module and a positive dispersion of the backup optical transport fiber; and reconfigure the optical switches such that the optical path has a positive dispersion equal to the difference in the magnitudes (Colbourne: col. 9, line 64 to col. 10, line 61 and col. 11, lines 3-22, and Delavaux: figs. 5 and 9 and col. 3, line 43 to col. 4, line 10

and col. 4, lines 32-63, and Feinberg: fig. 4, elements 420, 425 and 322 and paragraphs 0037 and 0041, as applicable in the combination).

Regarding claim 19, the combination of Colbourne, Delavaux, Keys and Feinberg disclose the dispersion enhancement module of claim 16, further comprising a controller operable to: determine the negative dispersion of the dispersion compensation module, determine the positive dispersion of the optical transport fiber, and configure the switches such that a magnitude of the positive dispersion of the optical signals from the optical output is substantially equal to a magnitude of the negative dispersion of the dispersion compensation module (Colbourne: col. 9, line 64 to col. 10, lines 61 and col. 11, lines 3-22 and Delavaux: col. 3, lines 10-42, as applicable in the combination).

Regarding claim 20, the combination of Colbourne, Delavaux, Keys and Feinberg disclose the dispersion enhancement module of claim 16, wherein the switches are further operable to optically couple the optical input and the optical output such that the optical path bypasses the dispersion enhancement fibers (as described above for claim 16 for the dispersion compensation device of the combination, where the positive dispersion fibers will be bypassed in any case where positive dispersion is not needed to create the dispersion compensation value required for compensation of a signal received from a span).

Response to Arguments

3.   Applicant's arguments filed 21 October 2008 have been fully considered but they are not persuasive.

In the Remarks page 9 lines 14-24, regarding claims 1, 9, 13, 16 and their dependent claims, Applicant initially asserts that the Office action points to Feinberg to teach "*a controller operable ... to detect a switch from the optical fiber to a backup optical transport fiber, the backup transport fiber having a third positive dispersion, and to reconfigure the dispersion enhancement module to provide a fourth positive dispersion, the sum of the third positive dispersion and the fourth positive dispersion substantially equal to the magnitude of the negative dispersion.*" However, this assertion is not consistent with Feinberg's role in the rejections. The combination before Feinberg already has a controller and already detects dispersion values and configures dispersion enhancement, etc. The role of Feinberg for the combination is based on Feinberg teaching of a protected optical transmission system where different dispersion compensation values are used for each of the received working and protection signals. Based on this teaching, it would have been obvious to provide a protection switched optical input to the existing dispersion compensation system of the combination, as described in the rejections. When such protection-switched input (have different dispersion values for working and protection) is provided, the existing system of the combination detects the fiber switch by way of detecting a change in dispersion values (since it is already detecting any needed amount of dispersion compensation in general), and then changes the compensation to reflect the new needed amount.

Applicant further argues the combination including Feinberg addresses the elements of "a controller operable… to detect a switch", but not the full clause. However, as described above, Feinberg's role in the rejections is not to add a controller,

etc., but rather to add a protection switched input to the existing combination, thereafter the existing combination will react to the changes in dispersion values resulting from the protection switch. "Third positive dispersion" and "fourth positive dispersion" occur when a protection switch presents a new dispersion scenario to the compensation system, the new scenario replacing the previous "first positive dispersion" and "second positive dispersion" values (from the viewpoint of the dispersion compensation system), which become irrelevant/inactive after the protection switch.

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN M. CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Examiner, Art Unit 2613